WHAT IS CLAIMED IS:

1. A method of fabricating an array of biopolymers on a substrate using a biopolymer or biomonomer fluid and a drop dispenser having a chamber into which the fluid is loaded and an orifice communicating therewith from which the fluid is dispensed, the method comprising:

(a) when the chamber is loaded, applying a prime pressure to the fluid which varies over a range sufficient to move fluid within the drop dispenser but insufficient to cause fluid to be dispensed from the orifice; and

(b) dispensing drops from the dispenser to the substrate so as to form the array.

2. A method according to claim 1 wherein the biopolymers are nucleic acids of different sequences.

3. A method according to claim 1 wherein the biopolymers are DNA of different sequences.

4. A method according to claim 1 wherein the prime pressure is less than the capillary strength of the orifice.

5. A method according to claim 1 wherein the varying prime pressure is cycled at least once between higher and lower pressures.

6. A method according to claim 5 wherein the varying prime pressure is cycled multiple times between higher and lower pressures.

7. A method according to claim 1 wherein the duration of each cycle is between 0.01 to 5 seconds.

8. A method according to claim 7 wherein the duration of each cycle is between 0.1 to 1 seconds.

9. A method according to claim 1 wherein the drop dispenser is a drop dispensing jet which includes the chamber and an ejector which, when activated, causes a droplet to be ejected from the orifice.

10. A method according to claim 9 wherein the ejector is a piezoelectric ejector.

11. A method according to claim 9 wherein the ejector is a thermal ejector.

12. A method according to claim 5 wherein the varying prime pressure reaches a value during a cycle which is greater than ambient pressure outside the orifice.

13. A method according to claim 5 wherein the varying prime pressure reaches a value during a cycle which is less than ambient pressure outside the orifice.

14. A method according to claim 5 wherein the varying prime pressure reaches a maximum value during a cycle which is greater than ambient pressure outside the orifice, and reaches a minimum value during a cycle which is less than ambient pressure outside the orifice.

15. A method according to claim 5, additionally comprising:

loading the dispenser by positioning the orifice adjacent and facing a biomonomer or biopolymer containing fluid, and providing a load pressure to the chamber which is sufficient such that the fluid is drawn into the chamber through the orifice;

positioning the head with the orifice facing the substrate; and

dispensing multiple drops from the head so as to form an array of droplets on the substrate;

wherein the varying prime pressure is applied following the loading and prior to the dispensing.

16. A method according to claim 1 wherein the orifice has an area of between 1 μm^2 to 3 mm^2.

17. A method according to claim 1 wherein the orifice has an area of between 30 μm^2 to 900 $\mu^2 m$.

18. A method according to claim 1 wherein the fluid capacity of the chamber is in the range of between 1 pL to 10 nL.

19. A method according to claim 1 additionally comprising, following exposure of the array to a sample:
reading the array.

20. A method comprising transmitting data representing a result the array reading obtained by the method of claim 19.

21. A method comprising receiving data representing a result of an array reading obtained by the method of claim 19.

22. An apparatus for fabricating an array of biopolymers on a substrate using a biopolymer or biomonomer fluid, comprising:
(a) a substrate station on which the substrate can be mounted;
(b) a drop dispenser having a chamber to receive and retain fluid loaded into the chamber, and an orifice communicating therewith from which loaded fluid is dispensed; and
(c) a pressure source to apply a varying prime pressure to fluid after it has been loaded in the chamber, which pressure is sufficient to move fluid within the drop dispenser but insufficient to cause fluid to be dispensed from the orifice.

23. An apparatus according to claim 22 wherein the pressure source, when activated, automatically applies the varying prime pressure in at least one cycle between higher and lower pressures.

24. An apparatus according to claim 23 wherein the pressure source, when activated, automatically applies multiple cycles of the varying prime pressure.

25. An apparatus according to claim 24 wherein the duration of each cycle is between 0.01 to 5 seconds.

26. An apparatus according to claim 24 wherein the duration of each cycle is between 0.1 to 1 seconds.

27. An apparatus according to claim 22 wherein the drop dispenser is a drop dispensing jet which includes the chamber and an ejector which, when activated, causes a droplet to be ejected from the orifice.

28. An apparatus according to claim 27 wherein the ejector is a piezoelectric ejector.

29. An apparatus according to claim 27 wherein the ejector is a thermal ejector.

30. A method according to claim 24 wherein the varying prime pressure reaches a value during a cycle which is greater than ambient pressure outside the orifice.

31. A method according to claim 24 wherein the varying prime pressure reaches a value during a cycle which is less than ambient pressure outside the orifice.

32. An apparatus according to claim 23 additionally comprising:

a load station to receive at least one fluid sample for loading into the dispenser; and

a transport system to selectively position the head facing any one of the stations;

and wherein the pressure source can also provide a load pressure to the chamber which is sufficient such that the fluid is drawn into the chamber through the orifice.

33. An apparatus according to claim 32 additionally comprising a processor which directs the transport system to selectively position the head facing the load station or substrate station, and which directs the pressure source to provide the load pressure when the head is facing the load station and to provide the varying prime pressure after the head has been loaded.

34. An apparatus according to claim 23 wherein the orifice has an area of between 1 μm^2 to 3 mm^2.

35. An apparatus according to claim 23 wherein the orifice has an area of between 30 μm^2 to 900 μ^2.

36. An apparatus method according to claim 23 wherein the fluid capacity of the chamber is in the range about 1 pL to 10 nL.

37. A computer program product comprising a computer readable storage medium carrying computer readable program code, for use with an apparatus for fabricating an array on a substrate and which has a substrate station on which the substrate can be mounted, a drop dispenser having a chamber to receive and retain fluid loaded into the chamber and an orifice communicating with the chamber and from which loaded fluid is dispensed, and a pressure source, the program code when loaded into a computer of the apparatus causing the apparatus to:

(a) apply a prime pressure from the pressure source to fluid in a fluid loaded chamber, which prime pressure varies over a range sufficient to move fluid within the drop dispenser but insufficient to cause fluid to be dispensed from the orifice; and

(b) dispense drops from the dispenser to the substrate so as to form the array.

38. A computer program product according to claim 37 wherein the varying prime pressure is cycled at least once between higher and lower pressures.

39. A computer program product according to claim 38 wherein the varying prime pressure is cycled multiple times between higher and lower pressures.

40. A computer program product according to claim 38 wherein the duration of each cycle is between 0.01 to 5 seconds.

41. A computer program product according to claim 38 wherein the program additional causes the apparatus to:

load the dispenser by positioning the orifice adjacent and facing a biomonomer or biopolymer containing fluid, and providing a load pressure to the chamber which is sufficient such that the fluid is drawn into the chamber through the orifice;

positioning the head with the orifice facing the substrate; and

dispensing multiple drops from the head so as to form an array of droplets on the substrate;

wherein the varying prime pressure is applied following the loading and prior to the dispensing.